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Evaluation of the Application of Modified Early Obstetric Warning Score in Maternal Patients at Sardjito General Hospital

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ABSTRACT

Background: Modified Early Obstetric Warning Score (MEOWS) is used to identify obstetric patients at risk of deterioration. MEOWS has long been used in the maternal ward of Dr. Sardjito Central General Hospital. Research in other countries found that MEOWS cards were not filled in completely and some MEOWS cards were not followed up.
Objective: to determine the completeness of the MEOWS card and the suitability of the interventions carried out with the MEOWS card instructions.
Methods: This study is a mixed method study (quantitative descriptive and qualitative phenomenology).
Results: Out of 1285 study subjects, the proportion of complete MEOWS cards was 84.67%. The proportion of appropriate interventions was 95.05%. Appropriate intervention was associated with length of hospitalization ≥ 7 days, p value 0.043, prevalence ratio 0.456 (95% confidence interval 0.242-0.858). Reasons for staff not completing MEOWS cards and not performing appropriate interventions were management factors, lack of knowledge, compliance, vigilance, training and medical records.
Conclusion: Most MEOWS cards were completed and appropriate interventions were performed. Appropriateness of MEOWS interventions is likely to reduce the prevalence of length of stay ≥ 7 days. MEOWS completion and interventions are influenced by staff management, knowledge, vigilance and compliance, which can be improved by training and practical use of medical records.

Keywords: Modified Early Obstetric Warning Score card, completeness of MEOWS card, Suitability of MEOWS intervention

ABSTRAK

Latar Belakang: *Modified Early Obstetric Warning Score* (MEOWS) digunakan untuk mengidentifikasi pasien obstetrik yang berisiko mengalami perburukan. MEOWS telah lama digunakan di bangsal maternal Rumah Sakit Umum Pusat dr. Sardjito. Penelitian di negara lain menemukan bahwa kartu MEOWS tidak diisi secara lengkap dan sebagian kartu MEOWS tidak ditindaklanjuti.
Tujuan: Mengetahui kelengkapan kartu MEOWS dan kesesuaian intervensi yang dilakukan dengan petunjuk kartu MEOWS.
Metode: Penelitian ini merupakan penelitian *mixed method* (kuantitatif deskriptif dan kualitatif fenomonologi).
Hasil dan Pembahasan: Dari 1285 subyek penelitian diperoleh proporsi kartu MEOWS lengkap 84,67%. Proporsi intervensi yang sesuai 95,05%. Kesesuaian intervensi berhubungan dengan lama rawat inap ≥ 7 hari, nilai p 0,043, rasio prevalensi 0,456 (Interval Kepercayaan 95% 0,242-0,858). Alasan petugas tidak melengkapi kartu MEOWS dan tidak melakukan intervensi yang sesuai adalah faktor manajemen, pengetahuan yang kurang, kepatuhan, kewaspadaan, pelatihan dan rekam medis.
Kesimpulan: Sebagian besar kartu MEOWS telah terisi lengkap dan dilakukan intervensi yang sesuai. Kesesuaian intervensi MEOWS kemungkinan dapat menurunkan prevalensi lama rawat inap ≥ 7 hari. Kelengkapan dan intervensi MEOWS dipengaruhi oleh manajemen, pengetahuan, kewaspadaan dan kepatuhan petugas, yang mana dapat ditingkatkan dengan pelatihan dan penggunaan rekam medis yang praktis.

Kata kunci: kartu *Modified Early Obstetri Warning Score*, kelengkapan kartu MEOWS, kesesuaian intervensi MEOWS

INTRODUCTION

According to research from Mothers and Babies: Reducing Risk through Audits and Confidential Inquiries in the UK (MBRRACE-UK) in 2016, the maternal mortality rate was 8.5 per 100,000 deliveries.[1] The Center for Maternal and Child Enquiries (CMACE) states that more than 50% of maternal deaths are potentially preventable. Developing morbidity can be difficult to recognize in pregnant women due to peripartum physiological changes. Delay in recognizing the patient's condition and initiating treatment can lead to worse outcomes.[2]

Pregnant women-specific Early Warning Systems (EWS) will use different parameters for evaluation, so it is possible that some warning systems work better than others. Major early warning systems include:[1] Maternal Early Warning System studied by ICNARC in the UK[2], Modified Early Obstetric Warning System (MEOWS) proposed by the Saving Mothers' Lives study in the UK[2,3]. Maternal Early Warning Trigger (MEWT) used in the Health System and in other hospitals in the United States.

A recent study stated that maternal deaths in the UK were due to substandard care in some cases.[2] Many avoidable factors such as lack of routine observation and failure to recognize deterioration of vital signs. To reduce the delay in recognition of such observations, the Modified Early Obstetric Warning Score (MEOWS) was adopted for routine use in pregnant and postpartum women who have been hospitalized and require obstetric or gynecological services especially for those who have been identified as having critical illness.[2] The use of MEOWS is now included in the management standards for labor and delivery set by the National Health System (NHS) Litigation Authority.[3]

Parameters monitored in MEOWS include respiratory frequency, oxygen saturation, temperature, heart rate, systolic and diastolic blood pressure, neurological response, pain, lochia, proteinuria and urine output.[4]

Close monitoring of all parameters should be a fundamental part of patient assessment to recognize acute illness at a very early stage and to save the patient's condition. Therefore, the MEOWS chart emerges as a useful screening tool to predict obstetric morbidity, fulfilling most of the criteria of an ideal screening tool in the obstetric population. The MEOWS chart should be routinely used as a screening tool for pregnant women as recommended by the report from CEMACH for early management of critical illness and periodic documentation of physiologic parameters.[5]

MEOWS assessments should be performed and documented at the onset of all hospitalizations and 12 hours later or as indicated. MEOWS can be applied to[6]:

- All laboring and postpartum women
- All hospitalized pregnant women
- All hospitalized postpartum women
- During the hospitalization of pregnant, laboring or postpartum women
- Mothers who feel unwell
- If suspected of an ongoing health problem.

Research at Felege Hiwot Hospital, Ethiopia, found that not all staff used MEOWS well. 82% of staff often used MEOWS, 35% sometimes used MEOWS, 91% of staff said that MEOWS was very useful, while 21% of staff had difficulty using MEOWS. This study was conducted on 40 staff in the Obstetrics and Gynecology Department of the Hospital.[7]

Umar (2021) who reported that MEOWS cards were only completed in 54% of total deliveries in Nigerian tertiary hospitals. Moore (2019) also found that MEOWS parameters such as heart rate, blood pressure, respiratory frequency and oxygen saturation were completed in 55% of patients.

The application of MEOWS at Sardjito General Hospital has been routinely carried out, but no evaluation has been conducted to determine the effectiveness of MEOWS, as was done in the studies above. Evaluation is very important to determine whether the use of MEOWS is on target, MEOWS interventions are in accordance with procedures, and the interventions have a positive effect on patients and Sardjito hospital.

The current study describes the process of using the Modified Obstetric Warning System (MEOWS) at Dr. Sardjito General Hospital Yogyakarta.

METHOD

This study used a mixed method design with a descriptive analysis quantitative design approach and a phenomenological qualitative design. Quantitative research uses secondary data from patient medical records. The population of this study were all pregnant women patients at Sardjito General Hospital in 2019-2020. Quantitative research subjects are patients who fit the inclusion and exclusion criteria. The following values, inclusion criteria are pregnant women who are admitted to the Maternal Perinatal Installation room of Sardjito Hospital> 24 hours. The exclusions are pregnant women with gestational age < 28 weeks and patients who enter the hospital are immediately treated in the ICU / HCU before going to the Maternal Perinatal Installation room. The sample taken was total sampling.

The qualitative research population was midwives who served in the maternal installation of Dr. Sardjito Hospital in 2019-2020. The qualitative research subjects were midwives who did not complete the MEOWS card and did not perform the MEOWS intervention. Qualitative research samples are midwives who do not complete MEOWS cards, do not perform MEOWS interventions and do not perform appropriate MEOWS interventions that are interviewed until no new answers are obtained.

RESULT AND DISCUSSION

1. Subject Characteristics

There were 1430 patients who met the inclusion and exclusion criteria, and 1285 patients were found in the medical records.

The mean age of the study subjects was 30.5 years with the youngest age being 15 years and the oldest age being 47 years. While the mean BMI of all subjects was 28.1 kg/m2, the lowest BMI was 15 kg/m2 and the highest was 74 kg/m2. Most of the subjects were multigravida with a proportion of 61.71%. For the category of maternal comorbidities, the highest proportion was other diseases 45.84% followed by hypertension in pregnancy 31.36%, heart disease 7.16% and diabetes 2.18%.

Table 1. Subject Characteristics

Characteristics (n=1285)	Total	%
Age		
< 20 & >35 years	345	26,85
20 – 35 years	928	72,22
No data	12	0,93
BMI		
<18,5 - ≥ 25 kg/m2	859	66,85
≥ 18,5 – < 25 kg/m2	362	28,17
No data	64	4,98
Gravida		
Primigravida	489	38,05
Multigravida	793	61,71
No data	3	0,23
Comorbities		
Hypertension in Pregnancy		
Yes	403	31,36
No	882	68,64
Diabetes		
Yes	28	2,18
No	1257	97,82
Heart Diseases		
Yes	92	7,16
No	1193	92,84
Other Diseases		
Yes	589	45,84
No	696	54,16

2. MEOWS Card Completeness

Of the 1285 subjects who had medical records, 1088 subjects (84.67%) had completed MEOWS cards while 197 subjects (15.33%) did not.

3. Intervention MEOWS Score

Among the 1088 pregnant women with a completed MEOWS card, 62.22% (677) pregnant women had a activated MEOWS card, while 37.78% (411) pregnant women were on unactivated MEOWS card. For more details can be seen in table 2.

Table 2. MEOWS intervention

Activated MEOWS chart (n=677)	MEOWS intervention		Total
	Yes (n=606) n (%)	No (n=71) n (%)	
Activated MEOWS value	606 (89,51)	71 (10,49)	677
MEOWS			
High	179 (91,79)	16 (8,21)	195
Moderate	133 (88,08)	18 (11,92)	151
Mild	294 (88,82)	37 (11,18)	331
HCU/ICU Admissions			
Yes	51 (96,23)	2 (3,77)	53
No	555 (88,94)	69 (11,06)	624
Length of stay			
≥ 7 days	78 (83,87)	15 (16,13)	93
< 7 days	528 (90,41)	56 (9,59)	584
Obstetric intervention			
Peer collaboration in other fields	109 (85,16)	19 (14,84)	128
Conservative	78 (81,25)	18 (18,75)	96
SC crash	7 (100,00)	0 (0,00)	7
SC emergency	154 (92,77)	12 (7,23)	166
SC elektif	93 (90,29)	10 (9,71)	103
Labor induction	116 (89,23)	14 (10,77)	130
Spontaneous labor without induction	67 (85,90)	11 (14,10)	78
Operative vaginal delivery	100 (86,96)	15 (13,04)	115

4. Appropriateness of MEOWS Intervention

Table 3. Appropriateness of MEOWS Intervention

Intervention of activated MEOWS chart (n=606)	MEOWS intervention		Total
	Appropriate (n=576) n (%)	No (n=30) n (%)	
Appropriateness of MEOWS intervention	576 (95,05)	30 (4,95)	606
MEOWS			
High	162 (90,50)	17 (9,50)	179
Moderate	123 (92,48)	10 (7,52)	133
Mild	291 (98,98)	3 (1,02)	294
HCU/ICU Admissions			
Yes	51 (100,00)	0 (0,00)	51
No	525 (94,59)	30 (5,41)	555
Length of stay			
≥ 7 days	70 (89,74)	8 (10,26)	78
< 7 days	506 (95,83)	22 (4,17)	528
Obstetric intervention			
Peer collaboration in other fields	103 (94,50)	6 (5,50)	109
Conservative	74 (94,87)	4 (5,13)	78
SC crash	7 (100,00)	0 (0,00)	7
SC emergency	148 (96,10)	6 (3,90)	154
SC elektif	88 (94,62)	5 (5,38)	93
Labor induction	112 (96,55)	4 (3,45)	116
Spontaneous labor without induction	65 (97,01)	2 (2,99)	67
Operative vaginal delivery	51 (100,00)	0 (0,00)	51

The proportion of MEOWS interventions that were appropriate with complete MEOWS cards activated was 576 (95.05%), while 30 (4.95%) MEOWS interventions were inappropriate. For more details can be seen in table 3.

5. Maternal Outcomes Activated MEOWS Score

In table 4, it can be seen that the complete activated MEOWS cards that received interventions were admitted to the HCU / ICU 8, 42%, which were not admitted to the HCU / ICU 91.58%. Fully activated MEOWS cards that did not receive intervention were admitted to the HCU/ICU 2.82%, who were not admitted to the HCU/ICU 97.18%. The p value for intervention on activated MEOWS cards with HCU/ICU admissions was 0.097 with a Prevalence Ratio (RP) of 2.988 95% Confidence Interval (CI) of 0.743-12.01. Activated full MEOWS card that received appropriate intervention, HCU/ICU admission 8.85%, not HCU/ICU admission 91.15%. Fully activated MEOWS cards that received inappropriate interventions had 0% HCU/ICU admissions and 100% non-HCU/ICU admissions. The p value for the appropriateness of interventions on activated MEOWS cards with HCU/ICU admissions was 0, 165 with RP 5.534 IK 95% 0350 -87.58.

Activated complete MEOWS cards that received MEOWS intervention with length of stay ≥ 7 days 12.87%, < 7 days 87%. Activated complete MEOWS

cards that did not receive the intervention with length of stay ≥ 7 days 21.13%, < 7 days 78.85%. The p value for the activated complete MEOWS card group that received the intervention with a length of stay ≥ 7 days was 0.056 with RP 0.609 CI 95% 0.371 - 0.999. The activated MEOWS card group that received the intervention according to length of stay ≥ 7 days was 12.15%, < 7 days was 87.13%. The fully activated MEOWS card group with inappropriate intervention length of stay ≥ 7 days 26.67%, those < 7 days 73.33%. The p value for the activated complete MEOWS card group that received the intervention according to the length of stay was 0.043 with RP 0.456 CI 95% 0.242 - 0.858.

Table 4. HCU/ICU Admission, Length of Stay and how to Discharge the Hospital on an Activated MEOWS Cards

Activated MEOWS chart	HCU/ICU admission		Total	*P* value	PR (prevalence Ratio)	CI 95%
	Yes n (%)	No n (%)				
Getting the intervention (n=677)						
Yes (n=606)	51 (8,42)	555 (91,58)	606	0,097	2,988	0,743-12,010
No (n=71)	2 (2,82)	69 (97,18)	71		1	
Appropriateness of intervention (n=606)						
Yes (n=576)	51 (8,85)	525 (91,15)	576	0,165	5,534	0,350-87,586
No (n=30)	0 (0,00)	30 (100,00)	30		1	
	Length of stay		**Total**	***P* value**	**PR**	**CI 95%**
	≥ 7 days n (%)	**< 7 days n (%)**				
Getting the intervention (n=677)						
Yes (n=606)	78 (12,87)	528 (87,13)	606	0,056	0,609	0,371-0,999
No (n=71)	15 (21,13)	56 (78,87)	71		1	
Appropriateness of intervention (n=606)						
Yes (n=576)	70 (12,15)	506 (87,85)	576	0,043	0,456	0,242-0,858
No (n=30)	8 (26,67)	22 (73,33)	30		1	
	Death	**allowed to go home**	**Total**	***P* value**	**PR**	**CI 95%**
	n (%)	**n (%)**				
Getting the intervention (n=677)						
Yes (n=606)	2 (0,33)	604 (99,67)	606	1,000	0,593	0,029-12,233
No (n=71)	0 (0,00)	71 (100,00)	71		1	
Appropriateness of intervention (n=606)						
Yes (n=576)	2 (0,35)	574 (99,65)	576	1,000	0,269	0,013 – 5,476
No (n=30)	0 (0,00)	30 (100,00)	30		1	

6. Qualitative Analysis

Interviews were obtained from 7 respondents with the characteristics shown in table 5.

Table 5. Characteristics of Qualitative Research Respondents

Responden	Characteristics			
	Age (years)	Last education	Length of service at Dr. Sardjito General Hospital (years)	Length of service in the maternal ward of Dr. Sardjito Hospital (years)
Midwife 1	37	D4	16	16
Midwife 2	52	D4	27	20
Midwife 3	33	D3	10	10
Midwife 4	45	D3	26	17
Midwife 5	37	D3	13	13
Midwife 6	40	D3	15	15
Midwife 7	40	S1	15	15

Reasons for not completing the MEOWS card

Individual factors - Management

There were 6 midwives whose answers fell into the management category, some of the quotes are as follows:

"Busyness in IMP, if there are many patients or there is supervision, crowded, not all patients can fill in their MEOWS cards" (midwife 3).

"I don't have time to fill out the MEOWS card because I work on priority patients such as patients under close supervision, bleeding, or labor" (midwife 6).

Individual Factors - Knowledge

The results of the interview obtained a quote from one midwife about knowledge, which is as follows:

"Lack of knowledge about filling out the MEOWS card, so they do not realize that all MEOWS cards must be filled out" (midwife 2).

Resource factors - Medical records

From the results of the interview, 1 midwife said the following quote:

"Officers must fill in twice on the monitoring sheet and MEOWS sheet" (midwife 7)

Resource factor-training

From the results of the interview, 1 midwife said the following quote:

"There is no continuous socialization from the hospital or information sharing between midwives about filling out MEOWS" (midwife 2).

Reasons for not performing MEOWS intervention

Individual factors - management

From the results of the interview, a quote from one of the midwives was obtained as follows:

"The follow-up that is carried out is not written as a MEOWS follow-up, but as a follow-up based on the patient's clinical condition. For MEOWS interventions, sometimes it is not written" (midwife 6).

Individual factors - vigilance and compliance

From the interview results, there were 5 midwives who answered that the patient's clinical condition was different from the MEOWS score. We have included only one quote below:

"Interventions are not carried out in certain cases such as preeclampsia because the MEOWS score is high but the clinical condition is good" (midwife 1).

Resource factor -medical records

From the interview results, a quote from a midwife was obtained as follows:

"Often the MEOWS value is activated because of the need for oxygen for fetal resuscitation" (midwife 2).

Reasons for not performing appropriate MEOWS interventions

Individual factors - management

From the results of the interview, a quote from one midwife was obtained as follows:

"Busyness in IMP when there are many patients" (midwife 1).

Individual factors - vigilance and compliance

From the interview results, 6 midwives answered that MEOWS interventions were carried out according to clinical conditions, the following is only 1 quote that we write here:

"At high MEOWS scores, it will be reported to dpjp if there are complications such as bleeding, impending respiratory failure, or hypotension or tachycardia" (midwife 2).

DISCUSSION

Subject characteristics

The most age is the 20-35 year group (72.22%), in accordance with previous study by Sulistianto (2022) with a presentation of 73%.[8] Most IMT (body mass index) in this study is abnormal IMT (<18.5 - ≥ 25 kg/m2) which is at risk of complications during treatment.[9] In this study, the proportion of multigravida is higher than primigravida. These results contradict previous research, namely Sulistianto's study which found primigravida higher than multigravida. This may be because the subjects of the study were preeclampsia patients, which is different from this study.[8]

MEOWS Completeness

Most of the MEOWS cards (84.67%) were completed. The proportion of incomplete MEOWS cards was 15.33%. This study is still better than Umar's (2021) study which reported that MEOWS cards were only completed in 54% of the total participants.[10] Moore (2019) also found that MEOWS parameters such as heart rate, blood pressure, respiratory frequency and oxygen saturation were written completely in 55% of patients[7]. Non-compliance in completing the MEOWS card may have led to worsening that was not detected earlier.

MEOWS Interventions

MEOWS interventions were mostly performed in all MEOWS score categories, including high, medium and low scores. Other variables such as HCU/ICU admissions also showed a greater proportion of both HCU/ICU admissions and non-HCU admissions, indicating that the MEOWS intervention was applied regardless of the patient's condition, whether the patient would be admitted to the HCU/ICU or a patient who was only admitted to a regular ward. MEOWS interventions were mostly performed in all length of stay groups (≥ 7 days and < 7 days), age groups, regardless of BMI, all comorbidities and all obstetric procedures.

Appropriateness of intervention

The proportion of MEOWS interventions performed in accordance with the MEOWS protocol stated on the MEOWS card was greater (95.05%) than the proportion of MEOWS interventions that were not appropriate. The discrepancies found were in the form of MEOWS interventions performed that were not in accordance with the MEOWS value. For example, in patients with high MEOWS scores, resuscitation and close monitoring should be carried out every 10-15 minutes but what was done was hourly monitoring.

The results of this study at Sardjito Hospital are better than previous studies. Umar in the study found 38.9% of patients performed MEOWS intervention in patients with complete and activated MEOWS cards. And of these 38.9% only 75.7% of interventions were reported and followed up by doctors according to the MEOWS protocol.[10] Meanwhile, Schuler found an even smaller number of MEOWS intervention suitability, namely 0.82% of activated MEOWS cards that were intervened by doctors.[11]

Maternal Outcomes

The proportion of subjects admitted to the HCU/ICU in the fully activated MEOWS card group with intervention and the fully activated MEOWS card group with appropriate intervention were each smaller than the proportion of subjects not admitted to the HCU/HCU.

The results of this study cannot be compared with previous studies because no studies were found that examined the relationship between MEOWS interventions and the suitability of MEOWS interventions with HCU/ICU admissions. However, there are studies that use MEOWS scores to predict maternal outcomes, including research by Tamara et al (2019) which concluded that MEOWS scores of more than 8 have a strong tendency to enter HCU/ICU admissions.[12] Another study by Ryan et al (2017) found that MEOWS has a sensitivity of 96% and specificity of 54% to predict HCU/ICU admission during the first 24 hours of patient care.[13]

The proportion of length of stay ≥ 7 days was smaller in the activated complete MEOWS card group and the activated complete MEOWS card group with appropriate interventions compared to the proportion of length of stay < 7 days in the same two groups (12.87% vs 87.13 and 12.15% vs 87.85) By conducting chi-square analysis, it was

found that there was an association between the proportion of length of stay and the appropriateness of intervention on the activated complete MEOWS card with a p value of 0.043. The study found that the prevalence ratio of length of hospitalization ≥ 7 days in the intervention group according to the fully activated MEOWS card was 0.456 (IK 95 0.242-0.858). This can be interpreted that MEOWS interventions carried out according to the MEOWS card protocol may be able to reduce the prevalence of hospitalization ≥ 7 days by 0.456.

No previous studies have examined MEOWS interventions and the appropriateness of MEOWS interventions and their association with length of hospitalization, so we cannot compare them. Previous studies dealt with the prediction of MEOWS scores on maternal outcomes, such as MEOWS scores ≥ 9 in patients with pre-eclampsia having a longer hospitalization time compared to MEOWS scores less than that. (8)Another study found MEOWS values ≥ 7 had a median length of stay of 1-4 days while lower MEOWS had a median length of stay of 1 day.[14]

There were 2 deaths from 677 fully activated MEOWS cards, whereas we did not have data for unactivated MEOWS cards (n=411) and incomplete MEOWS cards (n=197). Note that there were a number of patients whose medical records could not be found (n=172). It is possible that among the missing medical record cards, complete MEOWS cards that were not activated or incomplete MEOWS cards there were cases of patients who died. This is a limitation of this study.

Phenomenonology Qualitative Analysis

The situation of the maternal ward of Dr. Sardjito Hospital, which is suddenly full of busyness due to the large number of patients or supervision, is often overwhelming in carrying out patient care. Isaasc (2014) can even cause care procedures including completing and intervening MEOWS values to not be carried out properly finding busy staff to be the main reason for officers not completing MEOWS.[15]

According to the researcher, the busyness of the ward can be overcome well if the number of staff is sufficient and the division of tasks takes place well. MEOWS completion procedures are also often missed when patients are not on the ward. This can be addressed by assigning the delivery person to fill in the MEOWS. Doctors should also be reminded to write down the instructions to be carried out when MEOWS is activated so that they can be followed by the duty midwife on the ward. The duty midwife should understand that if she intervenes with the activated MEOWS, she must write it in the medical record. This management problem should be studied further, whether it arises because of insufficient quantity and quality or because of inefficient placement.

Based on the interview results, lack of knowledge was also expressed by respondents in this study. Isaasc (2014) found a lack of teaching and training to be a reason for staff not completing MEOWS[15] One person's knowledge of MEOWS completion and intervention is useful if transferred to another. However, in transferring knowledge, barriers are often encountered. Individual barriers include the level of belief about the knowledge, ownership rights, lack of appreciation given to the person transferring the knowledge. While organizational barriers include work atmosphere, conflict of interest, inefficient bureaucracy, lack of facilities for knowledge transfer.[16] According to the researcher, the first step is refreshing from senior midwives to junior midwives, resident doctors and students, perhaps in a simple form such as a focus group discussion.

The results of the interviews showed that officers took action if the clinical condition was poor. However, if the clinical condition is good and MEOWS has been activated, no intervention has been carried out or the intervention provided is not in accordance with the MEOWS protocol. The function of MEOWS here is to recognize early signs of deterioration so that intervention can be carried out as a form of deterioration prevention. If the intervention is carried out when the clinical deterioration is too late and a form of failure in the application of MEOWS. In addition, not intervening according to the protocol is a form of non-compliance.

Iksanov (2021) said that compliance allows a person to act prudently in carrying out activities. In addition, compliance can alleviate responsibility and avoid punishment. Compliance should be considered

not only as an administrative control mechanism carried out under regulations, but also as a way of self-control to minimize risks and consequences.[17]

Medical records are documents that contain data on patient identity, examination, treatment, actions, and other services that have been provided to patients. Filling in medical records should be practical and electronic medical records are now widely available.[18]

Research Limitations

This study is a descriptive design that only describes the proportion of each variable, it cannot explain the relationship of all the variables studied. Secondly, the medical records were not electronic medical records, so there might be data or MEOWS sheets that were loose or lost that could affect the research. Third, this study also did not describe in detail the types of MEOWS interventions. Fourth, this study was limited to one hospital, so it cannot be used for a larger population.

CONCLUSIONS

The author concludes several things from this research:

1. The proportion of MEOWS Cards that were filled in completely was greater than the proportion of incomplete MEOWS Cards, which was 84.67%.
2. The proportion of MEOWS intervention compliance with the instructions written on the MEOWS card is greater than the MEOWS intervention that is not in accordance with the instructions on the activated MEOWS card, which is 95.05%.
3. Activated MEOWS interventions performed according to the MEOWS card protocol are likely to reduce the prevalence of hospitalization ≥ 7 days by 0.456.
4. The completeness and intervention of MEOWS at dr. Sardjito General Hospital is influenced by ward management, compliance, vigilance and officer compliance, which can be improved by comprehensive training and practical medical record support.

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